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ABSTRACT

The booklet reviews ways in which students with crutches may be helped to successfully participate in four specific sports. General guidelines for modifying programs for this group include the importance of thorough assessment, attention to details of the game play, and consideration of equipment and supply alterations. Each of the four sports is addressed separately (sample suggestions in parentheses): badminton (use of an extended racket to extend reach, allow the student to sit while particpating); golf (use of a golf club with an angled shaft); archery (allow the student to kneel or lean against a raised bench); and tennis (use of a tennis ball retriever and modifications in the basic grip and standard techniques). (CL)

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PROGRAM ADAPTATIONS FOR STUDENTS IN FOUR SELECTED SPORTS: BADMINTON, GOLF, ARCHERY, AND TENNIS

Jim Cowart

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INTRODUCTION

Today great strides are being made in the recognition of a disabled individual as an unique person who simply has an impairment, instead of a disabled individual who is limited and handicapped. Sports and recreational activities have played a significant role in overcoming preconceived ideas regarding the disabled person and his/her abilities. These activities have provided the vehicle for communicating the disabled person's capabilities to non-disabled people.

The significant role that the physical educator plays is in assisting disabled persons to develop and effectively use movement skills. To utilize these skills in meaningful sports and recreational activities is the ultimate goal. In fulfilling this role as facilitator of skill development, the physical educator is challenged by the varying abilities of students who need assisting devices such as wheelchairs, crutches, and prosthetic devices, for independent living. Each aid presents a unique challenge to the student and his/her teacher in learning a particular skill. The teacher must determine the student's potential and develop it to the fullest.

The purpose of this article is to review some accommodations that have been made to assist students with crutches to successfully participate in four selected sports. Common to all are some general points to consider when modifying programs for the crutch walker:

. Through assessment, the teacher should learn the pupil's ability to control his/her body while using crutches, as well as his/her level of performance in the continuum of acquired skills. With this knowledge, any needed program modifications can be made appropriate for the individual's capabilities.

. There are many areas of game play that may be changed so that a disabled pupil with crutches can compete in peer-related activities. These include decreasing the playing area, permitting additional trials, bounces, or hits, reducing the number of points required to complete a game, and so on.

. Finally, the modification of equipment and supplies may allow individuals with movement limitations to more fully participate in selected sports with classmates. Adjustments may consist of lowering a net or basket or using lighter, longer, or larger pieces of equipment or supplies.

BADMINTON

In order to see what adjustments are needed in the sport of badminton for a student dependent on crutches, it is first necessary to determine if the pupil can maintain balance with one crutch while swinging a racket with the other hand (see Figure 1). If the pupil can sustain adquate balance while swinging a racket, note whether the student can effectively move with the assistance of one crutch to rally the shuttle. Knowing the pupil's range of movement will help determine the most appropriate size of the playing space. This could involve only a slight reduction of the singles court (marked with

Figure 1.

tape) to the use of half of the regular singles playing area. A second alternative is to play doubles, in which players play side by side. Another approach to reducing court size is to play trio badminton in which the student with crutches plays side by side with another participant in the forecourt, while a third player covers the backcourt.[1] In addition, for both singles and doubles if the individual is severely restricted in movement the "drop shot" may be declared illegal, again limiting the playing area that needs to be covered.

For a pupil who has good upper body strength and coordination, an extended racket may help increase his/her reach.[2] Such a racket may be constructed by removing the racket head from one racket and the handle from another leaving the entire length of the shaft in both cases. The racket shafts are then connected by sliding each open end onto a 3"-4" circular rod (the rod is the diameter of the inside of the shaft) and welding the two pieces securely in place, forming a lengthened badminton racket.

Specific problems experienced by some pupils who have movement limitations have been maintaining balance when using one crutch, retrieving a shuttle from the floor, and serving the shuttle. The methods described below address each area of difficulty:

. A problem experienced by a few students is the inability to maintain body balance after taking a "good" swing at the shuttle. A cane handle racket (see Figure 2) was found to be of assistance to these pupils.[3] In constructing the cane handle racket a regular racket handle was first removed and replaced with a cane handle. Then a rubberized material was attached to the racket top, providing the student with a crutch that could be used to help maintain a greater degree of balance.

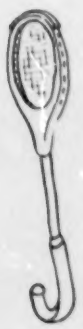

Figure 2.

. Some students have difficulty retrieving the badminton bird from the floor. An aid that has proven helpful was developed by Fait.[4] Strips of velcro were attached around the base of the shuttle, as well as to the top of the racket. The addition of the velcro to the bird did not seem to adversely affect the flight, while it did provide a practical means for recovering the shuttle.

. Serving proves a difficult task for other individuals because of the need to use one hand to hold a crutch for controlling the stationary body position. One method that may be helpful is to place the bird on the strings of the racket being held in the free hand. Next lift the racket upward propelling the shuttle into the air, then strike the bird with an underhand stroke. A second method is to hold the bird with the thumb and forefinger of the crutch hand. When ready to serve,

the player releases the bird and the racket is brought forward to hit the shuttle with an underhand stroke.

If a student needs two crutches to maintain body stability, an alternative approach has been to have the individual sit while participating. A stable chair on wheels with arm rests (often found in school offices), or a wheelchair, provides the pupil body stability while swinging the racket, and offers a convenient means of retrieving a shuttle out of play. Being in a wheelchair may be new to some pupils. In such cases practice may be necessary before the individual feels comfortable and plays effectively. The student in a seated position will probably experience some of the same problems as one using crutches, i.e., limited mobility, difficulty in retrieving a shuttle from the floor, etc. In most of these cases the solutions discussed above for a pupil needing crutches apply also to the person in a seated position.

GOLF

Golf is another sport in which a student with crutches can participate with success. As with badminton the student may find that support can be maintained with one crutch while swinging a club with the free hand (see Figure 3). In such a case a right-handed individual is encouraged to use a right-handed club and play forehand while supporting himself/herself with a crutch in the left hand (vice versa for a left-handed person). This approach was emphasized because the pupil is generally capable of greater initial control of the club with the forehand swing. (If a right-handed individual chooses to use a left-handed club and play backhanded, then he/she should be assisted in developing this technique.)

Figure 3.

Balance and club control are the key areas that need to be perfected by the pupil. Through experimentation the individual will find the best position to place his/her crutch in order to sustain a stable base of support while swinging the club with the free hand. The hand and arm will be emphasized in the swing. The amount of shoulder and trunk involvement in the swing will depend on the student's ability to maintain body balance.

If the student is unable to support himself/herself without using both crutches then he may find success by half-leaning, half-sitting against a raised bench[5] (see Figure 4). While in this position the pupil should try to support himself/herself in as straight a position as possible. Having legs slightly spread assists in providing a stable base of support. As with a one arm swing, the hands, arms, and shoulders are emphasized in the swing more than the body turn. For individuals unable to maintain balance while leaning against a bench the next reasonable accommodation would be a wheelchair where the student would be even more securely planted. General points helpful in adjusting to the seated position are: securely lock the wheels of the chair to prevent movement during the swing; add a large cushion to the seat of the

Figure 4.

chair to increase the height of the student; use a safety strip around the abdomen or chest region to help maintain balance; remove the foot and/or arm rests to permit a freer swing.

A specific adaptation that has proven useful and practical to some wheelchair students is the use of a golf club with an angled shaft (see Figure 5). When seated in a wheelchair an individual is often lower to the ground than if he/she was standing, therefore, the sole of an ordinary golf club held by the student while seated will be tilted up at an angle instead of being flat. This, of course, prevents consistency in hitting the ball. The use of the modified club with a bent shaft permits the sole of the club to be flat on the ground, thus affording the chance for more consistency.[6] To construct the modified golf club the shaft of a golf club is cut into two pieces just above the ferrule. A metal rod 6"-8" long and the thickness of the inner diameter of the cut shaft is bent several degrees at its middle. The head end of the club shaft is placed onto one end of the bent rod and the handle portion of the shaft is inserted over the other rod end. The club is then welded at the joints to make a solid unit.

Figure 5.

ARCHERY

In archery, as with the other sports that have been reviewed, the major adaptation needed by a student with crutches is securing a balanced position when shooting. The approaches used by students include kneeling on the ground or a low bench, inclining against a high stable bench, or sitting in a regular chair or a wheelchair.

. A few students have found that kneeling offers the best base of support while shooting (see Figure 6). Kneeling on grass is adequate, but a firm pad or low bench on which to rest the knees works out better when the grass is wet, as is often the case in the early morning hours.

Figure 6.

. Some pupils wearing long leg braces have preferred to lean against a raised bench (similar to that mentioned in the golf section) when assuming a shooting position (see Figure 7). By trial and discussion the best position on the bench for stability, comfort, and alignment with respect to the target can be determined.

In both of the above two positions (kneeling on the

Figure 7.

ground and leaning against a raised bench) the fundamental steps normally taught to non-handicapped archers (nocking, bow hold, draw, anchor point, aim, release, and follow-through) are identically taught to these students and without any modification unless in response to a specific need.

For some youth, sitting in a regular chair or wheelchair is the only stable shooting position. The seated student, like the one kneeling on the ground or leaning against a bench, will generally follow the same basic steps in the shooting process that are stressed with able-bodied peers. There are some exceptions. For example, instead of being concerned with foot placement, the student in a chair is interested in the position of the chair in relation to the target; the chair position and alignment is important for stability as well as for providing the greatest degree of accuracy. In addition, it is important to find the proper body position sitting in the chair to be comfortable and able to consistently assume the same position while shooting. Finally, for an individual in a wheelchair, the bow arm in the "extended shoulder" form is recommended because it creates a longer draw; such a draw helps keep the bowstring away from the wheel of the chair or arm rest when shooting from short distances.[7]

If after making the above suggested adjustments related to body and/or chair position, and introducing students to the basic shooting technique, it is found as with some nonhandicapped youth that a pupil experiences difficulty (see Cowart's article in on archery for the disabled).[8] This article elaborates on methods of keeping the arrow on the bowstring or arm rest, on pulling the bowstring when this presents difficulties, and other special problems.

TENNIS[9]

Problems for students on crutches playing tennis are similar to those in badminton: maintaining body balance; stroke execution; serving the ball; retrieving a ball from the ground.

Figure 8.

. As with badminton it is necessary to note whether or not the student is capable of supporting himself/herself in an upright position using one crutch while swinging a racket with the free hand (see Figure 8). If stability is maintained, the question becomes how mobile the pupil can be on the court, an assessment through trial and discussion by the instructor and student. The pupil's range of movement, as in badminton, should govern the size of the playing space. Half the singles court may initially be used. Also, the player may be allowed two or three bounces before play is stopped. If further restrictions are needed, a portion of the forecourt closest to the net may be declared out of play.

Another approach is to play doubles or triples on a normal singles court, again with a two or three bounce rule if needed. Such accommodations have proven effective in involving a crutch walker in the game of tennis.

. When possible, the disabled student should be taught the basic grip and standard techniques for executing the basic strokes. Where this is not possible, modifications must be made. For example, for beginners it is sometimes difficult to get into position to execute the regular forehand and backhand strokes. The most practical approach in such cases is for the pupil to forsake "classic" strokes and play simply by eye-hand coordination, emphasizing good contact and racket face control to at least "get the ball back." These strokes at first will not feature the sideways stance, backswing of the racket, weight shift of body, and other elements of classical tennis strokes. But with time the pupil will become more adept at moving around the court and positioning himself/herself in relation to the flight of the ball -- at that point more conventional strokes will begin to emerge.

. In serving, a student who can sustain a stable position may be able to hold the ball with the thumb and forefinger of the crutch hand and toss into the air. Then the racket is brought forward in the regular manner to hit an overhand serve. Some individuals may be unable to serve overhand because of the need to keep one crutch in contact with the ground at all times. In this event two options are possible, both making use of an underhand serve. The first technique involves positioning the body such that the forward shoulder of the crutch arm is forward. The ball is held with the thumb and forefinger of the crutch hand. When the player is ready to serve, the ball is dropped, and after one bounce is hit with an underhand stroke. The second method is to place the ball on the strings of the racket while holding the racket in the free hand. Lift the racket slightly upward propelling the ball in the air; following a bounce the ball is struck using an underhand swing.

. Some pupils using one crutch to play tennis have found it difficult to retrieve a tennis ball from the ground. For these students a tennis ball retriever can be easily made for this purpose.[10] The retriever is made from a tennis ball cut approximately in half (see Figure 9) and secured to the edge of the racket head or to the end of the handle. To retrieve the ball, simply press the adaption on the ball. The firmness of the rubber holds the ball and allows it to be easily retrieved.

The use of a wheelchair may be necessary for a student who has been unable to effectively play in an upright position. On the whole, for a seated student, as with a pupil using crutches, the basic grip and strokes are taught with modifications centering on the position of the wheelchair in relation to the ball, method for maintaining body stability in the chair, and so on. In addition, because of the limitation in movement it will probably be necessary to include game modifications similar to those introduced for a student needing crutches, i.e., to reduce the size of the court and to allow additional bounces before play is stopped. Lastly, a major problem for a person unfamilar with a wheelchair is to learn to effectively move the chair, with racket in hand, about the court. It is a complex task that involves pushing the chair, adjusting

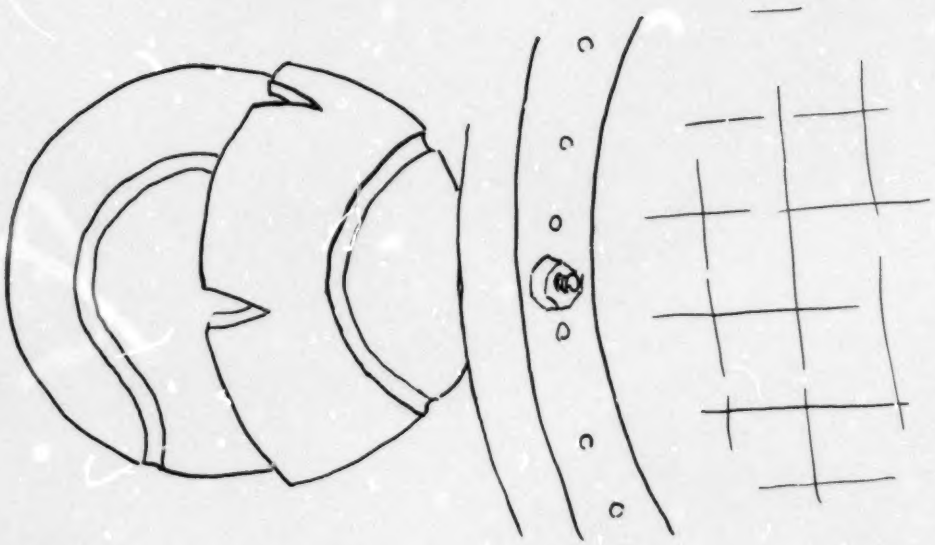

Figure 9.

the movement so that the chair is in the proper position in sufficient time to allow for preparation of the arms for the stroke, and then effectively contacting the ball with the racket. For a detailed description of methods of maneuvering a wheelchair and executing a stroke while seated, refer to a series of articles by Brad Parks in Sports 'N Spokes.

CONCLUSION

It is hoped that the general points reviewed at the beginning of this article, and the examples of program adaptations presented to help pupils with crutches successfully participate in four popular sports will be helpful. These suggestions should provide a starting point from which to offer an effective program for any crutch walker who desires to experience the joy of participating in these sports.

FOOTNOTES

[1]Chrisman, D. "Badminton at 65 and Older." JOHPER 50

[2]Cowart, J. "Badminton for the Disabled." G.W.S. National Coaches Council Newsletter 2, Fall 1977.

[3]Cowart, J. "Cane Handle Badminton Racket." AAHPER/IRUC Briefings 2, May, 1977.

[4]Fait, H., and Shivers, J. Therapeutic and Adapted Recreational Services. Philadelphia, PA: Lea & Febiger, 1975.

[5]The original idea was obtained through correspondence with Peter Longo, Golf pro, P.O. Box 27283, Tempe, AZ 85282.

[6]Cowart, J. "Adapted Golf Club for Seated Student." AAHPER/IRUC Briefings 4, January 1979.

[7]Whitman, J. "Coaching Techniques for Wheelchair Archery." National Wheelchair Athletic Association, 40-42 62nd St., Woodside, NY 11377.

[8]Cowart, J. "Archery Pointers for Disabled." AAHPER/IRUC Briefings 3, October 1977.

[9]A game stressing the use of an ALL BALL (tennis ball size nerf ball) on a badminton court with a lowered net has been helpful to students in their stroke development.

[10]Cowart, J. "Tennis Ball Retriever." AAHPER/IRUC Briefings 5, January 1980.

[11]Parks, B. "Wheelchair Tennis - Parts 1, 2, 3, and 4." Sports 'N Spokes 6, Sept.-Oct., 1980, Nov.-Dec., 1980, Jan.- Feb., 1981, Mar.-Apr., 1981.

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